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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte KAREN HARGETT BEAN, SANDRA MARIE ROGERS, DAVID L. ZENKER, DALE ARTHUR PETERSON, JAMES MARTIN KAUN, and PAUL WINDSOR ESTEY

Appeal 2008-5029
Application 10/620,142
Technology Center 3700

Decided:January 14, 2009

Before ERIC GRIMES, RICHARD M. LEBOVITZ, and MELANIE L. McCOLLUM, *Administrative Patent Judges*.

McCOLLUM, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to an absorbent structure. The Examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

STATEMENT OF THE CASE

Claims 20-27, 29-43, 51-65, and 70 are on appeal. Claim 28 is also pending but has been withdrawn from consideration by the Examiner. We will focus on independent claims 20, 32, and 51, which read as follows:

20. An absorbent structure comprising an absorbent member at least partially made of fibers and a reinforcing member at least partially embedded in the absorbent member for maintaining the structural integrity of the absorbent member, the absorbent member having a first axis extending generally lengthwise of the absorbent member and a second axis perpendicular to said first axis extending generally widthwise of the absorbent member, the reinforcing member comprising a first set of substantially parallel strands, and a second set of strands that cross said first set of strands at junctions in a non-orthogonal relationship to define openings in the reinforcing member, at least some of the fibers of the absorbent member extending through the openings in the reinforcing member and being entangled with other fibers of the absorbent member.

32. An absorbent structure comprising an absorbent member at least partially made of fibers and a reinforcing member at least partially embedded in the absorbent member for maintaining the structural integrity of the absorbent member, the reinforcing member being connected to the absorbent member and at least partially gathering the absorbent member to form rugosities on a surface of the absorbent member.

51. An absorbent structure for absorbing liquid, the absorbent structure comprising an absorbent member at least partially made of fibers and a reinforcing member at least partially embedded in the absorbent member for maintaining the structural integrity of the absorbent member, the reinforcing member having a non-uniform transverse width, the reinforcing member having openings therein, at least some of the fibers of the absorbent member extending through the openings in the reinforcing member and being entangled with other fibers of the absorbent member.

Claims 20-27, 29-43, 51-65, and 70 stand rejected under 35 U.S.C. § 103(a) as obvious in view of Hsueh (U.S. Patent No. 5,536,264, Jul. 16, 1996) (Ans. 5).

ISSUES

Has the Examiner set forth a prima facie case that Hsueh teaches or suggests: (a) an absorbent member having fibers "extending through . . . openings in [a] reinforcing member and being entangled with other fibers of the absorbent member," as recited in claims 20 and 51; and (b) a reinforcing member "at least partially gathering [an] absorbent member to form rugosities on the surface of the absorbent member," as recited in claim 32?

FINDINGS OF FACT

1. The Specification discloses an absorbent structure including "an absorbent member at least partially made of fibers and a reinforcing member at least partially embedded in the absorbing member for maintaining the structural integrity of the absorbent member" (Spec. ¶ [0008]).

2. In particular, as depicted in Figure 2, the Specification discloses an absorbent structure "having an absorbent core 33 (broadly, 'an absorbent member')," which includes fibers, and a "web of scrim 40 (broadly, 'a reinforcing member') . . . located roughly in the middle of the absorbent core 33" (*id.* at ¶ [0035]).

3. In one embodiment, the Specification discloses entangling "the absorbent material of the absorbent core 33 . . . with the web of elastomeric scrim 40 while the web of scrim is in a stretched condition" (*id.* at ¶ [0069]).

4. In particular, the Specification discloses:

> The web of scrim 40 is stretched . . . before the absorbent core 33 is formed on the web of scrim. The absorbent material is joined to the tensioned elastomeric scrim 40 as shown in Fig. 5A by entangling the fibers . . . so that upon release of the tensioning force on the elastomeric scrim, the web of scrim gathers the absorbent core 33 to form rugosities 90 in the absorbent material as shown in Fig. 5B.

(*Id.*)

5. Hsueh discloses "an absorbent composite comprising at least one absorbent macrostructure layer comprising a multiplicity of interconnected absorbent gelling particles . . . , and at least one substrate bonded to the absorbent macrostructure layer" (Hsueh, col. 3, ll. 58-63).

6. Hsueh also discloses that the "absorbent composite can comprise an additional porous absorbent macrostructure layer . . . attached or bonded thereto to form a sandwich structure" (*id.* at col. 6, ll. 38-41).

7. In addition, Hsueh discloses that particles that aggregate to form the macrostructures can comprise fibers (*id.* at col. 9, ll. 53-64).

8. Hsueh also discloses that the substrate layer can "serve as a supporting means for the absorbent macrostructure layer by supporting the interconnected absorbent particles in the absorbent macrostructure" (*id.* at col. 20, ll. 7-10).

9. In addition, Hsueh discloses that the substrate layer can be an elastomer and that it can be stretchable (*id.* at col. 20, ll. 42-47 & 61-64).

10. Hsueh also discloses that the "bonding or interconnection between the absorbent macrostructure layer and the substrate layer can be made by a variety of chemical, physical, and adhesive agents" (*id.* at col. 22, ll. 46-48).

11. In forming a continuous absorbent composite, Hsueh discloses that the "layered composite is compacted or pressed together to improve the contact, and interconnection, of the absorbent gelling particles with adjacent particles and with the substrate layers" (*id.* at col. 36, ll. 7-16).

12. To form a non-continuous absorbent composite, Hsueh discloses

> forming a plurality of slits or cuts penetrating at least partially, preferably completely, through the thickness of the continuous composite sheet. . . . Voids are formed in the composite at the location of the slits when the slitted composite is then stretched in a direction substantially perpendicular to the direction of the slits.

(*Id.* at col. 40, ll. 38-52.)

13. The Examiner relies on Zachry (U.S. Patent No. 5,112,325, May 12, 1992) as evidence that compacting or pressing together Hsueh's layered composite would provide an absorbent macrostructure layer having fibers extending through openings in the substrate layer and being entangled with other fibers of the absorbent layer (Ans. 10).

14. Zachry states:

> Mechanical bonding of the fibers of the web one with another may also, or alternatively, be developed in the course of formation of the web due to entanglement of the fibers with one another, by mechanically pressing the web to compact the fibers, and/or by other means such as pressure-entanglement of the web fibers.

(Zachry, col. 4, ll. 8-14.)

ANALYSIS

Under 35 U.S.C. § 103, "the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). "Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is

not sufficient to establish inherency." *Scaltech Inc. v. Retec/Tetra L.L.C.*, 178 F.3d 1378, 1384 (Fed. Cir. 1999).

With regard to claims 20 and 51, the Examiner finds that Hsueh discloses that "the absorbent member 71 and reinforcing member 72 are attached by a variety of chemical, physical, and adhesive agents" and "are compacted together to improve the contact and interconnection of the absorbent particles and the adjacent layer" (Ans. 5). The Examiner also finds that "it is known in the art that mechanical bonding occurs from compression or compaction of webs. For example, Zachry . . . teaches mechanical entanglement as a result of compression of webs." (*Id.* at 10.) The Examiner concludes that this "mechanical entanglement satisfies the limitation of fibers passing through the reinforcing member and becoming entangled with other fibers of the absorbent member" (*id.*).

We are not persuaded. Hsueh discloses "an absorbent composite comprising at least one absorbent macrostructure layer . . . and at least one substrate bonded to the absorbent macrostructure layer" (Finding of Fact (FF) 5). Hsueh also discloses that particles that aggregate to form the macrostructures can comprise fibers (FF 7). In addition, Hsueh discloses that "bonding or interconnection between the absorbent macrostructure layer and the substrate layer can be made by . . . physical . . . agents" (FF 10). However, the Examiner has not set forth a prima facie case that Hsueh teaches or suggests an absorbent member having fibers "extending through . . . openings in [the substrate] and being entangled with other fibers of the absorbent member," are recited in claims 20 and 51.

As noted by the Examiner, Hsueh discloses that the "layered composite is compacted or pressed together to improve the contact, and

interconnection, of the absorbent gelling particles with adjacent particles and with the substrate layers" (FF 11). However, we do not agree that this would inherently provide an absorbent member having fibers "extending through . . . openings in [the substrate] and being entangled with other fibers of the absorbent member."

In particular, Zachry states that "[m]echanical bonding of the fibers . . . [may] be developed in the course of formation of the web due to entanglement of the fibers with one another, by mechanically pressing the web to compact the fibers, and/or by other means such as pressure-entanglement of the web fibers" (FF 14). Based on the sentence structure, it is not clear whether "mechanically pressing the web to compact the fibers" modifies "entanglement of the fibers" or "mechanical boding of the fibers." However, even assuming that mechanically pressing Zachry's web together entangles the fibers, the Examiner has not set forth a prima facie case that mechanically pressing Hsueh's composite would provide fibers "extending through . . . openings in [the substrate] and being entangled with other fibers of the absorbent member."

With regard to claim 32, the Examiner finds that "Hsueh additionally discloses [that] the reinforcing member comprises an elastomeric material" (Ans. 6). The Examiner concludes that it would have been obvious "to form rugosities on the surface of the absorbent member as Hsueh discloses the components are stretched to form voids . . . , which represent broken connections between the fibers and reinforcing member in the machine direction" (*id.*). In particular, the Examiner finds that the "elastomeric material combined with the absorbent member, having greater stretch than

the absorbent member would characteristically gather the absorbent member and form rugosities on the surface of the absorbent member" (*id.*).

We are not persuaded. Hsueh discloses that the substrate layer can be an elastomer and that it can be stretchable (FF 9). Even assuming that Hsueh's substrate layer is more stretchable than the absorbent layer, Hsueh does not disclose stretching the substrate layer, attaching the stretched layer to the absorbent layer, and then allowing the substrate layer to contract, which would form rugosities in the absorbent layer (*see* FF 3-4). Instead, Hsueh discloses stretching a slitted composite to form voids, thereby forming a non-continuous absorbent composite (FF 12). The Examiner has not adequately explained why this would "at least partially gather[] the absorbent member to form rugosities on the surface of the absorbent member," as recited in claim 32.

CONCLUSION

The Examiner has not set forth a prima facie case that Hsueh teaches or suggests: (a) an absorbent member having fibers "extending through . . . openings in [a] reinforcing member and being entangled with other fibers of the absorbent member," as recited in claims 20 and 51; and (b) a reinforcing member "at least partially gathering [an] absorbent member to form rugosities on the surface of the absorbent member," as recited in claim 32. We therefore reverse the rejection of claims 20, 32, and 51 and of claims 21-27, 29-31, 33-43, 52-65, and 70, each of which depends from one of claims 20, 32, and 51.

REVERSED

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